GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA

UNSTARRED QUESTION NO:1078
ANSWERED ON:02.03.2016
Nuclear Power Share in Electricity Generation
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Will the Minister of ATOMIC ENERGY be pleased to state:

(a) the present share of nuclear power in the electricity generation in the country and the expected share by the year 2022;

(b) the measures taken by the Government to meet the target set for year 2022;

(c) whether the share of central funds for research and innovation in the nuclear power sector has increased during the last four years and the current year;

(d) if so, the details thereof and if not, the reasons therefor; and

(e) the steps being taken by the Government to improve research and development practices in nuclear energy?

Answer

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (Dr. JITENDRA SINGH):

(a) The present (April 2015 to January 2016) share of nuclear power in the total electricity generation (30869 MUs) is about 3.3%. The present installed capacity of 5780 MW is expected to increase to about 13480 MW by 2022 on progressive completion of projects under commissioning / construction and new projects that have been sanctioned. The actual share in generation would depend on the generation from all sources in that year.

(b) The Government has accorded financial sanction for the projects planned to be completed by 2022 and entered into enabling agreements with foreign countries in respect of projects to be set up with international technical cooperation.

(c)&(d) Yes, Sir. The details of funds released during the last 3 years and in the current year are given below:

Rs. in crore

R&D Sector	2012-13	2013-14	2014-15	2015-16
	5399.13	6511.89	6552.60	7198.63

(e) Bhabha Atomic Research Centre (BARC), a constituent unit of Department of
Atomic Energy is a multi-disciplinary Nuclear Research Centre of India having excellent infrastructure for Advanced Research and Development with expertise covering the entire spectrum of Nuclear Science and Engineering and related areas. A large amount of work involves development of various advanced innovative technologies which are realised after substantial research work carried out by our scientists and engineers.

A number of steps have been taken by Department of Atomic Energy (DAE)
to enhance research and innovation in nuclear energy.

DAE instituted Board of Research in Nuclear Sciences (BRNS) to facilitate interaction and promote active collaboration with other premier institutes, research laboratories and Universities of India, to enhance research and innovation in the areas of nuclear energy. Research grants are awarded for sponsoring scientific symposia and workshops. BRNS also extends fellowships to young researchers to pursue Ph.D. Dr. K.S. Krishnan Research Associate program of BRNS encourages bright post-doctoral fellows to work in different research organisations of DAE with a possibility to be absorbed for permanent employment. DAE also encourages its young scientists to interact with outside world through established bilateral exchange schemes under various National Academies of India, Department of Science and Technology, and its own collaborating routes as well.

DAE and the University Grants Commission (UGC) had set up UGC-DAE Consortium for Scientific Research at Indore in 1989, functioning under the UGC. The scope of the co-operation includes promoting high quality research programs in physical, chemical, life and engineering sciences. While the Consortium is headquartered in Indore, its Mumbai centre is located inside BARC, Trombay. It also has centres in Variable Energy Cyclotron Centre (VECC), Kolkata and Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam. DAE facilitated the UGC-DAE Consortium to set up their specialised centres in close proximity to the respective DAE units in the above four locations.

BARC has entered into Memorandum of Understanding with Universities of Mumbai and Pune. Under this scheme students get opportunity to pursue Ph.D Programme in various disciplines under the guidance of specialists from BARC and also utilise the excellent infrastructure to carry out experiments.

DAE has been categorised as a mission-mode Organisation based on its track record, performance, innovations and realisation of strategic programmes. DAE has implemented Performance Related Incentive Scheme (PRIS) based on the recommendation of 6th Pay Commission in all the Units keeping in view the need to reward the performance of the organization and its personnel in realising predefined objectives and contributions made towards research and innovation activities.

PRIS is awarded after measuring the performance of Individual/Group/Organization, against goals set for a given period of assessment.

Through the DAE award scheme, young scientists/engineers as well as senior scientists are rewarded for their exceptional contribution to the research and innovation activities of the Department. The rewards include cash incentive, medal and a citation.

Update allowance is provided to Scientists so that they can subscribe to reputed journals to keep themselves abreast with latest research work and publications. With update allowance scientists can also obtain membership of scientific societies which provide them a good platform to participate in scientific programs and share their scientific knowledge.

As part of physical sciences, BARC is indigenously developing synchrotrons, linear accelerators to carry out research in high energy particle physics. A 21m diameter gamma ray telescope designed indigenously is to be installed at Hanle for high altitude research.

BARC is setting up a new Research Centre at Visakhapatnam for green field projects to meet the future demands for carrying out research and development activities in advanced areas of Nuclear Science and Engineering.

Indira Gandhi Centre for Atomic Research (IGCAR) situated in Kalpakkam is also a multi-disciplinary R&D unit of DAE entrusted with indigenous development towards mastering of 2nd stage of the Nuclear Power Programme including Fast Breeder Reactor (FBR) and associated closed fuel cycle technologies. The design for 500 MWe Prototype Fast Breeder Reactor (PFBR) has been completed and is at an advanced stage of commissioning at Kalpakkam. The first of its kind Fast Reactor Fuel Cycle Facility (FRFCF), aimed to close the fuel cycle of PFBR is under construction.

Raja Ramanna Centre for Advanced Technology (RRCAT) located at Indore is one of the premier research and development unit of DAE working in the area of particle accelerators. RRCAT is also engaged in developing and deploying lasers of different kinds in the fields of advanced plasma research, nuclear power plants, biomedical applications, materials science and basic research.

Variable Energy Cyclotron Centre (VECC), Kolkata, a constituent unit of DAE entrusted for research in nuclear sciences with excellent infrastructure for advanced research and development in the field of accelerator technology, is involved in the design and development of advanced and sophisticated Superconducting Radio Frequency Cavity technology intended to be used in energy frontier accelerator programmes in DAE.

In addition to above, Research Associateship and Visiting Scientist arrangements are some of the special schemes offered to the Young Scientists to pursue research programmes in DAE. They are also encouraged to publish their work in Journals, attend National / International conferences.

The above steps have immensely helped in enhancing the research and innovative activities in the nuclear sector.

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